HANDBOOK OF PHONOLOGICAL DATA
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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520 Cham		520 Cham		520 Cham	
520	01 p [p-unreleased] 60 (free) [p-lax] 72		[x] 31 (free)	51 i	
520	02 p-aspirated [f] (free)	13	s-retroflex	52 e 04	
520	03 b [b-preglottalized] (free) [glottal stop-unreleased-labialized] 01 61	14	s-hacek */c-aspirated/ [h-palatalized] 01 62	53 epsilon 04 [e-mid] 67 [ash] 67 (free)	
520	04 t [t-unreleased] 60 (free) [t-lax] 72	15	m [b-prenasalized] 63	54 i-bar 36	
520	05 t-aspirated	16	n 32 [n-retroflex] 38 64 (free) [d-prenasalized] 63	55 schwa [ash-dot] 68 [schwa-nasalized] 68 (free) [schwa-glide] 37 68	
520	06 d [d-preglottalized] (free)	17	n-palatal	56 a [a-long] 69	
520	07 t-retroflex	18	eng [eng/m] 65 [g-prenasalized] 66 (free,limited)	57 u [upsilon] 70 (free)	
520	08 t-retroflex-aspirated	19	l 32 [l-flap] 64 (free) [l-retroflex] 64 (free)	58 o [o/w] 71 [e-trema/w] 71 (free)	
520	09 c 02 [glottal stop-palatalized] 01 61	20	r-flap 32 34 [z-hacek-retroflex] 35 (free) [r-flap-retroflex] 64 (free) [r-trill] 33 64 (free)	59 o-open	
520	10 c-aspirated 02 *[s-hacek] [t/c-fricative] 30 (free)	21	glottal stop	60 yod 34	
520	11 k [k-unreleased] 60 (free) [k-lax] 72	22	h	61 w	
520	12 k-aspirated			81 mid 05 [higher-mid] 73	
				82 low 05	

520 $a Cham $b Vietnamese $d West Indonesian $e South Vietnam $f 150,000 $g Merritt Ruhlen $g Marilyn Vihman (review) $g John Crothers (editor)

520 $a Blood, David L. $b 1967 $c Phonological Units in Cham $d Anthropological Linguistics 9, 15-32 $q informants $r two years

520 $a **CREAKY VOICE VOWELS (NON-DISTINCTIVE)** $A "Spectrograms indicate that /glottal stop/ varies with laryngealization in word-final position." (p.18) There is no mention of laryngealization or creaky voice in connection with the vowels or tone. [MV]

520 $a **FREE VARIATION** $A Aside from the many free variants listed here (word-final stops, preglottalized stops, [f], [x], [z-hacek-retroflex], the affricate variants of /c-aspirated/, and the final liquids and /n/), an unusual degree of variation between phonemes is reported as well: e.g., word-finally /t/ and /k/ may be replaced by /glottal stop/ (p.17f); /t-aspirated/ may vary with /s-hacek/, /l/, or /h/ (p.18ff); /s-hacek/ and /s-retroflex/ may vary freely in some words (p.19); /i/ and /e/ alternate before /b, m, eng, l, r-flap/ and /glottal stop/; /o/ and /o-open/ alternate before /c/ and /yod/. (p.26f)

520 $a **OVER-SHORT VOWELS** $A "Although no phonemic contrasts exist between vowels in preliminary [pre-stressed] syllables of [disyllabic] words, five phonetic distinctions have been observed": [i, i-bar, u, schwa, a]. "The vowel qualities approximate those of the main vowel counterparts. But, due to reduced timing, the quantities vary from reduced to zero grade vocalism. And they

tend to be closer to the mid-central position." (p.25)

520 $a **PHONOLOGICAL WORD** $A Non-reduplicated words consist of an obligatory (stressed) syllable (o the shape described above), preceded by one or two weakly stressed syllables. The latter have the shape CV(C). (p.15f) For the segmental restrictions on di- and trisyllabic words, see p.16.

520 $a **REDUPLICATION** $A "In full reduplications, the basic form precedes the reduplicated form, which may have undergone vowel and consonant changes without loss in the number of segments. For partial reduplications, the basic word form is preceded by the reduplicated form, which may have undergone both final consonant loss and final vowel replacement or just consonant loss." (p.17)

520 $a **STRESS** $A "Disyllabic words...consist of a weakly stressed preliminary syllable of very short relative duration followed by a heavily stressed main syllable. Since stress is predictable, and no contrasts are based on stress alone, it is considered subphonemic." (p.15) In three syllable words the initial syllable has a secondary stress which is weaker than that of the final syllable." (p.16)

520 $a **SYLLABLE** $A C(L)(G)V(C) $A final C: /p, t, k, m, n, eng, l, r-flap, h, glottal stop, w, yod/ (Note that /t, k/ vary freely to /glottal stop/, and /l, r-flap, n/ are in free variation finally.)

520 $a **TONE** $A domain of tone: word $A "A prosodeme of pitch may stretch over both syllables of a [disyllabic] word, regardless of which syllable owns the phonemic pitch.... Also, phonetic pitch may optionally be retained in forms which have lost syllable-initial voiceless oral stops...or in forms in which these syllable-initial stops have been replaced by other consonants.... In [trisyllabic] words with initial voiceless oral stops, the contrastive pitch component applies to the first and second syllables only. The third [stressed] syllable is unaffected by the pitch prosodeme of the first two syllables.... If the feature of pitch is on the third syllable, the first two are not affected...." (p.30) $A Low pitch contrasts with non-low pitch only following a syllable-initial voiceless stop. All other syllables have non-low pitch, though "the register of non-low pitch is higher" before final stop and /h/. (p.29) $A Relative pitch level is the distinguishing feature in pitch contrasts. "The contour for pitch prosodemes may be rising, falling, level or combinations of these contours." (p.30)

520 $a **VOICELESS SONORANTS** $A /h/ occurs prevocalically in word-initial position and word finally; it also may precede all the sonorants. Because it may alternate with /s/ before /r-flap/, and because a sequence /h + nasal/ may correspond to a non-reduced sequence /h + vowel + nasal/, the h + sonorant clusters are not reinterpreted as voiceless sonorants here. [MV]

520 01 $A [glottal stop-unreleased-labialized], [glottal stop-palatalized] and [h-palatalized] are "prelabialized" and "prepalatalized." (p.18ff)

520 02 $A /c/ and /c-aspirated/ are "palatal to prepalatal." (p.18f)

520 03 $A /s-hacek/ is "alveopalatal to prepalatal." (p.19)

520 04 $A /e/ is described as "mid to high open," /epsilon/ as "low to mid close." (p.26)

520 05 $A The two contrastive pitches are described only as "low" and "non-low." (p.29f)

520 30 $A "The phonetic manifestation of /c-aspirated/ varies from a palatal to prepalatal stop followed by sibilant friction...or glottal friction...to an alveopalatal stop followed by sibilant friction...or glottal friction." (p.19)

520 31 $A /k/ "occasionally" varies with [x]. (p.19)

520 32 $A "Word-finally there is some alternation between /n, l, r-flap/." The discussion seems to indicate that it is final /l/ which is most variable, but this is not clear.

520 33 $A /r-flap/ "may rarely vary to trill in preliminary and main consonant positions." (p.21)

520 34 $A "Very frequently women use the palatal semi-vowel /yod/ to replace alveolar flap /r-flap/ of men's speech." (p.18)

520 35 $A "[r-flap] may also alternate with a voiced retroflexed palatal fricative [z-hacek-retroflex] in some idiolects." (p.21)

520 36 $A /i-bar/ occurs "only before /k/, /glottal stop/, /h/, /n/, /yod/, and silence." (p.26)

520 37 $A [schwa-glide] occurs only after the high vowels /i/ and /u/; these sequences are analyzed here as clusters ending in /schwa/. (See p.27f.)

520 38 $A /n/ may become [n-retroflex] word finally. (p.20)

520 60 $A Unaspirated stops may be unreleased utterance-finally. (p.19)

520 61 $A Word-finally /b/ and /c/ are realized as prelabialized and prepalatalized glottal stop, respectively. (p.19)

520 62 $A Word-finally /s-hacek/ is realized as [h-palatalized]. (p.19)

520 63 $A /m/ and /n/ are realized as prenasalized stops word-initially before /r-flap/. (p.21)

520 64 $A Word-finally /n/, /l/ and /r-flap/ may be realized as [n-retroflex], [l], [l-flap], [l-retroflex], [r-flap], [r-flap-retroflex], and rarely [r-trill]. (p.20)

520 65 $A /eng/ becomes [eng/m] following /u/ and /o/. (p.20, 27)

520 66 $A /eng/ may be realized as [g-prenasalized] word-initially, when a preliminary syllable is lost, especially in women's speech. (p.20)

520 67 $A /epsilon/ is raised to [e-mid] before /yod/; it varies freely with [e-mid] and [ash] word-finally. (p.26)

520 68 $A /schwa/ is realized as [ash-dot] before a glide, and may be nasalized before /k/. (p.26f) After a high vowel /schwa/ is realized as a glide. (p.27f)

520 69 $A /a/ is lengthened before a glide. (p.27)

520 70 $A /u/ may be realized as [upsilon] before alveolars. (p.27)

520 71 $A /o/ is realized as [o/w] before /eng/; this varies with [e-trema/w]. (p.27)

520 72 $A The voiceless stops have lax allophones in low tone syllables before front vowels followed by /glottal stop, h, eng/. Laxness may also replace pitch as the distinctive feature. (p.30)

520 73 $A /mid/ ("non-low") is raised before final stops and /h/. (p.29)